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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
JORGENSEN, LELAND R	
ART UNIT	**PAPER NUMBER**
2675	

DATE MAILED: 07/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/045,467	CHAN ET AL.	
	Examiner	Art Unit	
	Leland R. Jorgensen	2675	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 February 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 6 and 8 - 10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 - 6 and 8 - 10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because of the following informalities: Claim 1 (currently amended) lines 9 – 10 states, "each pair of electrode pairs…" This suggests a pair of pairs, that is a four electrode set but the next six lines describe only two electrodes, a first electrode and a second electrode. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 6, and 8 - 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Jackson et al., USPN 5,572,344.

Claim 1

Jackson teaches a liquid crystal display device comprising a first substrate [optically transparent substrate 12] and a second substrate [optically transparent passivating layer 28] facing the first substrate. A space for housing liquid crystal molecules [liquid crystal material 24] is formed between the first substrate and the second substrate. Jackson, col. 3, lines 39 – 67; and figures 1 & 2. A plurality of electrodes [16 – 22] are paired and disposed on the first substrate. Jackson, col. 3, lines 52 – 57. Jackson, in figure 2 shows electrodes 18 and 22 paired and being in parallel with each other and electrodes 16 and 20 being paired and in parallel to each other. If the phrase "all the electrodes pairs being disposed parallel with each other" is

interpreted as all electrodes are parallel with another electrode, then figure 3 anticipates this arrangement. If the phrase means that all electrodes are parallel with all other electrodes on the first substrate, such arrangement is anticipated when Jackson states, "While the simplest pixel element would have only one set (two) of electrodes,..." Jackson, col. 3, lines 53 – 54. As shown in figure 2, each pair of electrodes comprises a first electrode (e.g. 18) with a first end and two symmetric first lateral sides connecting with the first end, formed on the first substrate and a second electrode (e.g. 22) with a second end and two symmetric second lateral sides connecting with the second end, formed on the first substrate. The first end faces the second end with a discharge gap there between. Jackson, figure 1, shows a discharge gap between the upper face of electrode 16 and the upper face of electrode 22, just above the resistance layer 14. A plurality of liquid crystal molecules is formed in the space in a predetermined arrangement. Wherein when an external voltage is applied between the first and the second electrodes, an electrical field is generated to change the arrangement of the liquid crystal molecules. Jackson, col. 4, lines 1 – 19. Although Jackson does not specifically describe the electric field as axially symmetric, it would be inherent that the electric field would be axially symmetric to each electrode pair. Since the face of each electrode pair is axially symmetric to the electrode pair and since the resistive layer 14, as shown in figures 1 – 4 is also axially symmetric to the electrode pairs, any electrical field between the electrodes would also be axially symmetric. Although Jackson describes the electric field as spatially varying this does not render the field axially asymmetric to the electrodes. The electric field, absent an outside force or an asymmetric design, would remain axially symmetric to the electrodes even though the field continuously or abruptly varied across the surface of the resistance layer. See Jackson, col. 3, lines 17 – 33.

Claim 6

Jackson, figure 2, shows that the first and second electrodes are arranged axially with respect to each other and wherein the first electrode is symmetrical to the second electrode alone a line of axial symmetry.

Claims 8 and 9

Jackson, figure 2, shows that the width (or thickness) of the first electrode increases from the first end to the other end, and the width of the second electrode increases from the second end to the other end.

Claim 10

Jackson teaches a liquid crystal display device having a plurality of display cells [pixel element 10] comprising a first substrate [optically transparent substrate 12] and a second substrate [optically transparent passivating layer 28] facing the first substrate. A space for housing liquid crystal molecules [liquid crystal material 24] is formed between the first substrate and the second substrate. Four electrodes [18 though 22] are disposed on the first substrate and at corners of each display cell. Jackson, col. 3, lines 39 – 67; and figures 1 & 2. A plurality of liquid crystal molecules formed in the space in a predetermined arrangement wherein when an external voltage is applied between the four electrodes, an electrical field is generated to change the arrangement of the liquid crystal molecules. Jackson, col. 4, lines 1 – 19.

Although Jackson does not specifically describe the electric field as axially symmetric, it would be inherent that the electric field would be axially symmetric to each electrode pair and radial symmetric to the four electrodes. Since the fours electrodes are radial symmetric to each other and since the resistive layer 14, as shown in figures 1 – 4 is also radial symmetric to the

electrodes, any electrical field between the electrodes would also be radial symmetric and thus axially symmetric. Although Jackson describes the electric field as spatially varying, this does not render the field axially asymmetric to the electrodes. The electric field, absent an outside force or an asymmetric design, would remain axially symmetric to the electrodes even though the field continuously or abruptly varied across the surface of the resistance layer. See Jackson, col. 3, lines 17 – 33.

4. Claim 10 is rejected under 35 U.S.C. 102(b) as being anticipated by Wiltshire, UPSN 5,313,562

Claim 10

Wiltshire teaches a liquid crystal display device having a plurality of display cells [liquid crystal cell 1] comprising a first substrate [glass plate 2]; a second substrate [glass place 3] facing the first substrate and a space for housing liquid crystal molecules [thin layer 4] formed between the first substrate and the second substrate. Wiltshire, col. 2, lines 28 – 31; and figures 1, 2, and 7. A plurality of liquid crystal molecules are formed in the space in predetermined arrangement. Wiltshire, col. 2, lines 31 – 45. Four electrodes [conductive strip electrodes 9 – 12] are disposed on the first substrate and at corners of each display cell. Wiltshire, col. 2, lines 46 – 50; and figures 1, 2 and 7. When an external voltage is applied between the four electrodes, an electrical field is generated to change the arrangement of the liquid crystal molecules. Wiltshire, col. 2, line 66 – col. 3, lines 30; and figure 5.

Although Wiltshire does not specifically describe the electric field as axially symmetric, it would be inherent that the electric field would be axially symmetric to each electrode pair and

radial symmetric to the four electrodes. Since the fours electrodes are radial symmetric to each other, any electrical field between the electrodes would also be radial symmetric and thus axially symmetric. The electric field, absent an outside force or an asymmetric design, would remain axially symmetric to the electrodes.

Claim Rejections - 35 USC § 103

5. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson et al, in view of Yoshida et al., USPN 6,642,984 B1.

Claim 2

Jackson teaches that spatially varying electric field causes induces the liquid crystal material to spatially vary the transmission of the incident light through the liquid crystal material. Jackson, col. 4, lines 1 – 19.

Jackson does not specifically teach the actual predetermined arrangement of the liquid crystal molecules.

Yoshida teaches that the predetermined arrangement of the liquid crystal molecules is in a vertical alignment, each liquid crystal molecule has a longitudinal axis, and the longitudinal axis is substantially perpendicular to the first substrate. Yoshida, col. 1, lines 32 – 35; col. 10, lines 62 – 65; and figure 5.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the predetermined arrangement of the liquid crystal molecules as taught by Yoshida with the liquid crystal device as taught by Jackson to produce "a liquid crystal apparatus in

which the contrast is not reduced when it is viewed obliquely." Yoshida, col. 1, lines 15 – 17.

Yoshida invites such combination by teaching,

> Thus, the liquid crystal molecules are aligned in the direction perpendicular to the substrate surface when no voltage is applied thereto, and are aligned in the direction parallel to the oblique electric field upon application of a voltage thereto. In this way, almost all the liquid crystal molecules are smoothly aligned along the electric field and, therefore, no disclination occurs.

Yoshida, col. 2, lines 15 – 19.

Claim 3

Yoshida teaches that the predetermined arrangement of the liquid crystal molecules is in a vertical alignment, each liquid crystal molecule has a longitudinal axis, the longitudinal axis is substantially perpendicular to the second substrate. Yoshida, col. 1, lines 32 – 35; col. 10, lines 62 – 65; and figure 5.

6. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson et al. in view of Hiroshi, USPN 5,995,186.

Claim 4

Jackson teaches that spatially varying electric field causes induces the liquid crystal material to spatially vary the transmission of the incident light through the liquid crystal material. Jackson, col. 4, lines 1 – 19.

Jackson does not specifically teach the actual predetermined arrangement of the liquid crystal molecules.

Hiroshi shows that the predetermined arrangement of the liquid crystal molecules is in a horizontal alignment, each liquid crystal molecule has a longitudinal axis, and the longitudinal

axis is substantially parallel to the first substrate and perpendicular to a line formed by the first end and the second end. Hiroshi, col. 3, lines 9 – 20, 61 – 65; and figures 2a and 2c.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the predetermined arrangement of the liquid crystal molecules as taught by Hiroshi with the liquid crystal device as taught by Jackson to produce a "liquid crystal display having a wide viewing angle and improved picture quality." Hiroshi, col. 1, lines 63 – 64.

Claim 5

Hiroshi shows that the predetermined arrangement of the liquid crystal molecules is in a horizontal alignment, each liquid crystal molecules has a longitudinal axis, and the longitudinal axis is substantially parallel to the second substrate and perpendicular to a line formed between the first end and the second end. Hiroshi, col. 3, lines 9 – 20, 61 – 65; and figures 2a and 2c.

Response to Arguments

7. Applicant's arguments filed 8 February 2005 have been fully considered but they are not persuasive.

As to both independent claims 1 and 10, application argued that Jackson does not teach "that a discharge gap is isolated between the first end and the second end. That which the Examiner characterizes as a "discharge gap" in Jackson et al. ('344) is connected by a resistance layer 14." Remarks, page 5. Examiner does not characterized the resistance layer as the discharge gap but instead refers to the gap above the resistance layer. Jackson, figure 1, shows a discharge gap between the upper face of electrode 16 and the upper face of electrode 22, just

above the resistance layer 14. As to applicants statement that the discharge gap is isolated between the first end and the second end, the claim does not include such language.

During examination, the claims must be interpreted as broadly as their terms reasonably allow. This means that the words of the claim must be given their plain meaning unless applicant has provided a clear definition in the specification. The words in a claim are generally not limited in their meaning by what is shown or disclosed in the specification. It is only when the specification provides definitions for terms appearing in the claims that the specification can be used in interpreting claim language. MPEP 2111.01

Applicant also amended claims 1 and 10 to add that the electric field is axially symmetric. Examiner disagrees. Although Jackson does not specifically describe the electric field as axially symmetric, it would be inherent that the electric field would be axially symmetric to each electrode pair and radial symmetric to the four electrodes. Since the fours electrodes are radial symmetric to each other and since the resistive layer 14, as shown in figures 1 – 4 is also radial symmetric to the electrodes, any electrical field between the electrodes would also be radial symmetric and thus axially symmetric. Although Jackson describes the electric field as spatially varying, this does not render the field axially asymmetric to the electrodes. The electric field, absent an outside force or an asymmetric design, would remain axially symmetric to the electrodes even though the field continuously or abruptly varied across the surface of the resistance layer. See Jackson, col. 3, lines 17 – 33.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hasegawa et al., USPN 5,638,203, teaches a liquid crystal device. See particularly, figures 1, 4B, and 5.

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leland R. Jorgensen whose telephone number is 571-272-7768. The examiner can normally be reached on Monday through Friday, 10:00 am through 6:00 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on 571-272-3638. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

On July 15, 2005, the Central FAX Number will change to 571-273-8300. This new Central FAX Number is the result of relocating the Central FAX server to the Office's Alexandria, Virginia campus.

Most facsimile-transmitted patent application related correspondence is required to be sent to the Central FAX Number. To give customers time to adjust to the new Central FAX Number, faxes sent to the old number (703-872-9306) will be routed to the new number until September 15, 2005. After September 15, 2005, the old number will no longer be in service and 571-273-8300 will be the only facsimile number recognized for "centralized delivery".

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

lrj

KENT CHANG
PRIMARY EXAMINER